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FOR THE COMMANDER

HENNINGE. VON GIERKE

Biodynamics and Bionics Division

Aerospace Medical Research Laboratory

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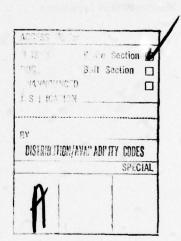
The A/M32C-4 Air Conditioner is an electric motor driven unit providing heating or cooling to aircraft cockpits or electronic equipment during ground maintenance. This report provides measured data defining the bioacoustic environments produced by this unit operating inside a large aircraft hanger at normal rated conditions. Near-field data are reported for 37 locations in a wide variety of physical and psychoacoustic measures: overall and band sound pressure levels, C-weighted and A-weighted sound levels, preferred speech

Form

### **PREFACE**

This report was prepared by the Biodynamic Environment Branch, Aerospace Medical Research Laboratory, under Project/Task 723104, Measurement and Prediction of Noise Environments of Air Force Operations.

The author acknowledges the efforts of Mr. Robert T. England and Mr. Robert G. Powell who conducted the field measurements, and Mr. John N. Cole who established the data analysis requirements and assisted in the preparation of this report. Mr. Henry Mohlman and Mr. David Eilerman of the University of Dayton assisted in the mechanics of data processing, and Mrs. Norma Peachey typed and prepared the graphics.



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#### INTRODUCTION

The A/M32C-4 Air Conditioner is an electric motor-driven unit providing heating or cooling to aircraft cockpits or electronic equipment during ground maintenance.

This volume provides measured data defining the bioacoustic environments produced by this unit. Such data are essential to evaluate ear protection requirements, limiting personnel exposure times, voice communication capabilities, and annoyance problems associated with operations of the A/M32C-4 air conditioner.

This volume is one of a series published by the Aerospace Medical Research Laboratory (AMRL) under the same report number (AMRL-TR-75-50) as a multi-volume handbook that quantifies the noise environments produced at flight/ground crew locations and in surrounding communities by operations of Air Force aircraft and ground support equipment. The far-field, community-type, noise data in the handbook describe the noise produced during ground operations of aircraft, ground support equipment, and other ground-based equipment or facilities.

Volume 1 of this handbook discusses the objectives and design of the handbook, the types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc. Volume 2 provides a method and data for adjusting the handbook's far-field noise data, which are for standard meteorological conditions (15C temperature, 70% rel humidity, 0.760 meters Hg barometric pressure) to derive comparable data for other meteorological conditions. Refer to Volumes 1 and 2 (references 1 and 2) for such information because it is not repeated in other handbook volumes.

A cumulative index lists those aerospace systems contained in the handbook, and identifies the specific volumes containing each type of environmental noise data available (i.e., inflight/flight crew and passenger noise, near-field/ground crew noise, far-field/community noise). Volume numbers are assigned sequentially as individual volumes are published. This index is periodically updated as individual volumes are published, and is available upon request from AMRL/BBE, Wright-Patterson AFB, OH 45433. Organizations on the distribution list for the handbook will automatically receive a copy of the updated index as it is generated.

Direct any questions concerning the technical data in this report and other handbook volumes to: AMRL/BBE, Wright-Patterson AFB, OH 45433; Autovon 78-53675 or 78-53664; Commercial (513) 255-3675 or (513) 255-3664.

- 1. Cole, John N., USAF Bioenvironmental Noise Data Handbook, Volume 1: Organization, Content and Application, AMRL-TR-75-50 (1), Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio, 1975.
- 2. Cole, John N., USAF Bioenvironmental Noise Data Handbook, Volume 2: Procedure to Evaluate Effects of Non-standard Meteorological Conditions on Far-Field Noise, AMRL-TR-75-50 (2), AMRL, WPAFB, OH, 1975.

#### **NEAR-FIELD NOISE**

#### **MEASUREMENTS**

A standard A/M32C-4 Air Conditioner was operated inside, and approximately in the center of a large aircraft hanger (190.5 m long  $\times$  95.1 m wide  $\times$  18.3 m high) on a concrete floor at normal rated conditions. The hanger walls and ceiling were not acoustically treated. No aircraft were in the vicinity of the unit while being measured. No far-field acoustic data were acquired because of the relatively close proximity of the hanger walls.

Figure 1 identifies 36 noise measurement locations at a height of 1.5 meters above the concrete apron (nominal ear level of ground crew). The 0 degree reference direction passes through the tow bar. These locations are in the acoustic near-field of the source where the sound wave fronts generally do not spherically diverge and the source appears to be spatially distributed (i.e., not a point source). Consequently, these near-field data cannot be extrapolated to longer distances but do properly define the levels at locations close to the unit.

Near-field measurements were also made at ear level at the operator control panel. Table 1 lists the numeric/alphabetic designators used on the data pages in this report to identify the operator measurement location and test conditions. The designator 1/A means operator location 1 and test condition A. Such a descriptor is essential in many handbook volumes that involve multiple combinations of locations/conditions. It is used in this report to maintain format consistency.

#### RESULTS

The measured data presented in Table 2 define the sound pressure levels (SPL) produced by the A/M32C-4 unit at the 37 specified, near-field locations. This table includes the overall, 1/3 octave band, and octave band levels. From these data one can calculate the variety of measures in Table 3 which are widely used to assess the effects of noise on personnel and their performance.

For data at other intermediate near-field locations (i.e., for radial distances less than 4 meters) you can interpolate between the 36 measured data points.

#### TABLE 1

# MEASUREMENT LOCATION AND TEST CONDITION FOR OPERATOR NOISE MEASUREMENTS

A/M32C-4 Air Conditioner, Edwards AFB, 22 Sep 1972

Measurement Location

1 Operator Control Panel

Operation

A Vent Cycle
B Cooling Cycle
C Heat Cycle

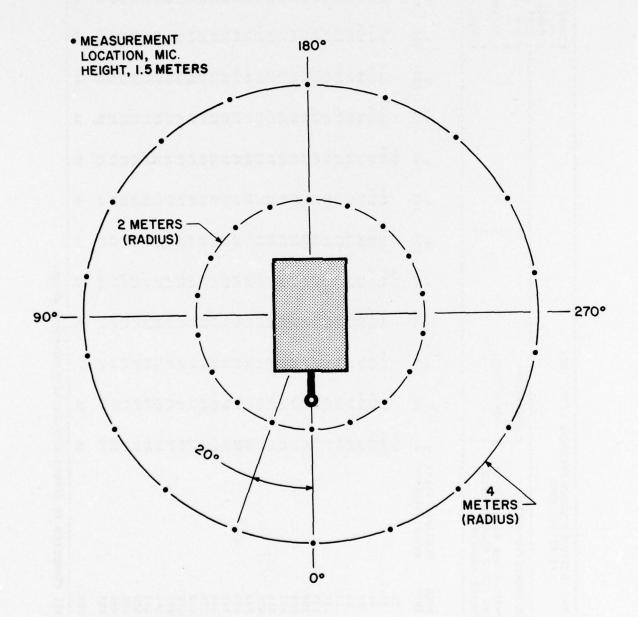


Figure 1. Measurement Locations

AAM326-4 AIR CONDITIONE ( VENT CYCLE ) )	TABLE:	MEASURED SOUND PRESSURE LEVEL 1/3 OCTAVE BAND	SSURE	LEVEL	(08)								DENTIF		CATION:	
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FREQ DISTANCE (M)-> 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	I NEAR FIE	HANGER)											) PAG	E F1		
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(HZ)         ANGLE (DEG)>         0         20         40         60         80         100         120         140         160         180         26           25         64         64         64         65         65         65         64         64         66         67         69         66         67         66         67         66         66         66         67         66         67         66         67         66 <th>FREG</th> <th>DISTANCE (M) -&gt;</th> <th>4</th> <th>4</th> <th>*</th> <th>4</th> <th>4</th> <th>4</th> <th>4</th> <th>4</th> <th>4</th> <th>4</th> <th>4</th> <th></th> <th>,</th> <th>-</th>	FREG	DISTANCE (M) ->	4	4	*	4	4	4	4	4	4	4	4		,	-
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63	05 1		89	634	29	65	29	99	29	29	29	99	959	> 49	634	-
80         73         72         68         68         70         71         71         72<	63		14	72	11	89	99	89	69	7.0	72	72	7.0	69	29	-
125 93 70 77 75 72 72 71 70 72 125 160 172 100 172 125 160 184 184 76 79 82 87 160 185 89 89 81 84 76 77 77 77 77 77 77 77 77 77 77 77 77	80		73	72	68	99	20	7.1	71	11	7.5	72	73	20	69	^
125	100		7.1	7.0	69	7.0	72	72	72	7.1	7.0	72	14	72	73	^
160	125		93	68	81	84	81	48	92	62	82	87	9.0	88	81	^
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31.5	624	944	654	634	634	702	>69	7.1	>69	684 684	2.0	11	2.5
20 0	624	624	614	624	>19	67	67	89	69	202	1.2	::	1.1
63	65	>99	89	7.1	72	72	7.1	72	72	72	73	15	73
80	>99	29	69	7.0	72	73	7.1	69	69	73	92	11	92
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150	75	0 60	9 6	75	82	833	82	50	25	22	82	85	2 80
200	22	72	2	73	72	92	78	7.8	80	82	81	83	80
250	11	18	14	11	73	82	81	83	87	98	98	87	86
315	73	15	73	73	72	7.8	85	83	94	85	68	88	82
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1000	15	15	11	77	92	83	83	87	83	83	9.4	98	87
1250	14	14	92	75	92	98	85	87	98	85	98	85	91
1600	72	2.0	72	72	72	42	81	81	82	80	83	87	98
2000	20	69	20	20	69	7.8	22	62	7.8	7.8	82	83	86
2500	69	68	68	69	69	11	78	80	7.8	4	83	85	90
3150	73	72	22	14	78	91	98	89	83	82	81	98	89
0004	92	92	80	80	82	46	95	93	68	98	83	87	98
2000	49	63	69	29	69	62	80	80	92	11	82	9.4	85
6300	99	65	68	7.0	72	85	98	83	4	2.8	81	85	85
8000	7.1	20	73	17	78	91	93	89	9.4	82	81	9.4	85
10000	61	23	61	63	99	22	62	80	73	7.1	22	81	81
OVERALL	9.0	92	95	95	93	100	66	100	96	96	96	66	101

		E BAND									) OMEGA 3.2
NOISE SOURCE/SUBJECT!	90	OPERATIONS	. N.								03
A/H32C-4 AIR CONDITIONER		VENT CYCLE	*CLE			-					) 26 AUG 74
NEAR FIELD NOISE LEVELS	_					-					•
(INSIDE HANGER)	-					-					) PAGE F3
DISTANCE (M) ->		~	8	2	2	2	2	8	8	2	OPERATOR LOCATION
FREQ ANGLE (DEG)>	160	180	200	220	240	260	280	300	320	340	TEST CONDITION
							•				1/A
25	62<	63<	>02	>19	>99	624		>99	72		704
31.5		<b>65</b> <	>19	68	>69	>69	>69	73	25		7.4
04	7.1	68	69	7.0	69	68	>99	>99	68		7.0
50	7.1	69	70	29	29	99	65	65	68		69
63	74	73	72	72	7.1	68	6.8	20	7.4		75
80	92	77	16	16	14	72	7.7	7.1	73		7.4
100	75	11	7.8	7.8	7.8	11	74	14	73		92
125	87	92	35	89	46	63	96	91	89		68
160	94	88	87	86	87	87	81	84	82		82
200	62	7.8	83	85	98	85	7.8	7.8	78		9.0
250	62	7.8	85	98	87	87	84	84	83		83
315	7.8	62	81	19	9.4	84	82	79	62		81
700	78	83	82	19	80	80	80	81	81		8.8
500	81	77	80	85	94	81	81	87	88		91
630	80	62	78	84	82	81	84	80	87		68
800	82	82	90	93	96	95	88	68	88		88
1000	11	25	78	81	83	81	81	80	81		86
1250	7.8	92	77	7.8	83	82	85	11	81		88
1600	92	72	71	92	19	7.8	92	92	7.8		9.6
2000	75	7.1	71	92	78	16	73	72	77		81
2500	77	72	69	75	7.8	92	73	7.1	14		79
3150	7.8	73	7.1	75	62	4	7.8	80	82		91
0000	77	42	73	92	81	81	81	84	68		96
5000	73	29	49	29	20	69	68	68	72		81
6300	7.1	99	63	89	72	72	20	7.0	92		87
8000	7.1	20	99	7.1	7.8	77	75	92	82		46
10000	9	60	58	62	69	49	49	49	69		82
OVERALL	93	95	96	16	100	98	95	96	46		102

A/M32C-4 NEAR FIEL (INSIDE H														
A/M32C-4 NEAR FIEL (INSIDE H	SOURCE/SUBJECT:	ō,	OPERATIONS				~ -					R GN	1 1	066-02
(INSIDE H	AIR CONDITIONER		COOLIN	COOLING CYCLE	w.		- ^					1 26 4	26 AUG 74	
	NEAR FIELD NOISE LEVELS (INSIDE HANGER)						••					) PAGE	¥	
	; ; ; ; ; ; ; ; ;													
FREG	DISTANCE (M) ->	4	*	4	3	4	3	4	4	*	4	4	4	4
(HZ)	ANGLE (DEG)>		20	04	09	80	100	120	140	160	180	200	220	240
55		>69	999	>49	63<	66	999	<b>65</b>	> 19	714	<b>65</b> <	>49	614	634
31.5		73	72	17	72	7.0	>69	7.1	>99	>69	>69	684	>29	>99
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50		68	20	20	72	11	2.0	7.1	7.0	73	72	73	7.1	89
63		8.0	62	92	14	73	73	73	14	78	80	7.8	11	73
80		62	22	92	1.4	7.4	73	73	11	62	82	80	7.8	73
100		78	11	92	15	7.8	92	75	22	62	83	83	83	82
125		95	16	91	95	98	8 9	88	82	9.4	87	95	89	81
160		48	94	81	82	7.8	80	4	11	62	82	9.4	80	25
200		20.	11	92	11	62	80	4	78	7.8	80	83	81	81
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1000		82	83	98	84	85	87	98	83	8.0	8.2	11	6.2	62
1250		81	87	94	7 8	83	82	82	87	82	92	92	62	4
1600		82	80	81	62	8.2	11	82	80	77	73	72	14	92
2000		15	11	11	7.8	92	11	79	80	11	7.1	11	73	73
2500		73	92	22	77	92	4	80	82	8.0	72	7.1	7.2	14
3150		81	85	85	81	7.8	4	81	82	80	72	73	1.4	75
0005		85	88	88	87	80	7.8	81	83	7.8	74	22	15	75
2000		73	75	92	73	72	91	11	18	75	69	49	65	69
6300		11	81	81	11	77	9/	11	7.8	74	49	49	24	89
8000		81	96	85	82	80	75	92	11	74	29	9	20	72
10000		73	47	47	7.0	89	7.0	72	73	69	28	25	60	09
OVERALL		98	66	100	66	96	103	102	86	93	93	96	95	95

2 1/2	1/3 OCTAVE BAND											OMEG	m	2
NOISE SOURCE	SOURCE/SUBJECT:	ΰ.	OPERATION:	. NC			~					RUN	2 2	000-00
A/H32C-4 AIR CON	AIR CONDITIONER		COOLI	COOLING CYCLE	LE							1 26 4	AUG 74	
NEAR FIELD NOIS (INSIDE HANGER)	D NOISE LEVELS ANGER)						••						F.5	77
FREG	DISTANCE (M) ->		4	4	1	4	2	~	•	2	2	2	2	~
(HZ)		260	280	300	320	340	0	20	04	09	80	100	120	140
25			63<	634	999	<b>65</b> <	714	704	>69	>69	>69	704	724	714
31.5		>99	684	>69	7.1	72	92	7.8	92	16	73	73	14	73
0.4		65	>19	>19	999	9	7.0	7.0	71	73	14	7.4	75	74
20		29	29	89	69	69	73	73	12	1.4	14	22	73	75
63		73	7.1	72	92	78	80	62	11	11	7.8	92	7.8	80
9.0		7.1	73	75	15	28	81	80	62	92	77	7.8	2.8	7.8
100		19	19	7.8	19	80	80	11	80	80	80	4	80	80
125		98	85	88	88	76	91	98	81	83	68	88	9.6	90
160		28	11	80	28	82	82	80	62	62	83	85	96	82
200		80	11	11	22	2.2	90	80	62	92	10	93	94	8
052		81	62	9 6	6,7	81	80 0	28	96	90	87	82	80 6	80 0
313		2	10	0 8	0 8		20	*	† L	60	0		2 .	0 0
000		0 8	2 6	0 0	9 6	9	90	200	60	0 0	90	000	16	0
000		9 0	9 0		- 0	70	0 0	0 0	60	000	900	0 0	9 6	0 0
		0 0	2 8	0 0	0 0	* C	0 0	90	9 7	0 0	0 0	16	16	107
1000		62	8	2	. «	200		87	0	8 0		~ «	6	6
1250		80	62	80	7.8	8.0	87	87	68	90	87	88	88	63
1600		75	7.4	75	75	92	81	84	85	93	83	83	87	87
2000		14	73	73	73	73	80	81	82	80	80	94	84	87
2500		73	73	72	73	73	7.8	13	82	82	81	83	98	9.0
3150		16	29	78	11	82	92	91	95	85	83	85	88	90
0004		62	80	80	81	86	76	96	96	87	85	85	98	87
2000		99	99	99	89	17	62	81	81	77	82	83	96	98
6300		68	7.0	11	75	11	98	87	89	82	82	81	85	85
8000		7.1	14	75	80	95	95	95	95	9.4	80	80	83	8
10000		61	61	62	99	69	8 0	81	62	14	7.1	15	80	80
OVERALL		93	93	95	96	44	101	103	103	86	86	102	102	105

2 1/3 OCTAVE BAND											
J											TEST 71-020-330
NOISE SOURCE/SUBJECT:	٠.	OPERATIONS	1 NO								90
AZM32C-4 ATP CONDITIONED		6001	COOL THE CYCLE	4		•					1 26 AUG 74
NEAR FIFTO NOTSE LEVELS						•					
(INSIDE HANGER)	-					-					) PAGE F6
DISTANCE (M) ->	~	N	~	~	~	~	~	~	8	8	OPERATOR LOCATION
tel	-	180	200	220	240	260	280	300	320	340	TEST CONDITION
											1/8
25	14	14	714	674	>69	684	684	684	73		7.4
31.5	73	14	75	7.0	72	7.1	72	75	7.8		61
07	15	75	25	73	73	7.1	7.0	11	7.1		7.2
20	11	92	11	14	7.4	73	73	73	73		7.3
63	82	81	82	80	80	80	79	7.8	7.8		81
0.80	83	85	83	79	28	11	92	18	62		62
100	82	82	88	87	87	98	81	81	82		62
125	91	95	91	9.0	95	95	88	91	9.0		06
160	85	87	87	98	87	88	82	83	85		83
200	*	83	87	87	87	86	80	81	80		82
250	83	81	98	88	88	98	82	84	83		06
315	82	85	81	7 0	88	82	10	82	85		10
007	83	83	83	81	82	82	82	80	82		88
500	83	80	81	98	80	82	84	84	87		93
630	87	4	81	82	94	83	87	85	90		92
800	88	87	16	16	90	95	91	90	95		91
1000	81	4	81	83	82	83	82	85	78		06
1250	82	80	80	82	87	83	85	80	9.4		06
1600	11	14	14	7.8	80	80	78	11	80		986
2000	92	73	72	11	82	7.8	92	73	7.8		82
2500	62	72	72	92	62	11	17	73	75		81
3150	80	72	72	92	81	79	81	80	80		95
0000	7.8	73	72	11	82	82	48	98	94		86
5000	73	29	65	89	7.0	7.0	69	69	72		82
6300	7.1	69	69	69	72	72	72	14	7.8		06
8000	72	71	68	72	75	16	92	11	9.4		16
10000	99	9	29	62	49	69	69	99	69		40
OVERALL	47	44	66	66	6	100	46	47	86		104

7 1/3 UCIAV	TAVE BAND											_		
7												OMEGA	3.	20-330
NOISE SOURCE/SUBJE	BJECT :	0	RA	. N			-					S. S.		
A/M32C-4 AIR	CONDITIONER		HEAT CYCLE	YCLE								1 26	26 AUG 74	
NEAR FIFTO NOTSE LEVELS	ISE LEVELS						-							
(INSIDE HANGER)	R)						-					) PAGE	F7	
FRED DIS	TANCE (M) ->	t	1	1	4	1	4	1	4	4	4	1	•	4
	ANGLE (DEG)>		50	9	09	80	100	120	140	160	180	200	220	240
25		704	>99	63<	624	63<	634		634	614	624	634	>49	
31.5		684	>99	>19	>29	68	>19	684	684	674	67×	>69	>99	99
04		<b>9</b>	634	>99	>29	69	68	69	99	69	89	2.0	>29	99
20		29	99	29	69	89	69	69	69	70	2.0	69	69	99
63		75	75	73	7.0	69	72	7.1	72	75	15	1.	73	71
80		92	75	20	7.0	7.0	73	73	72	14	92	11	14	71
100		73	72	77	73	75	92	15	73	73	14	11	92	75
125		95	91	94	89	83	98	79	83	85	91	93	06	78
160		87	83	78	82	92	4	92	11	62	<b>3 6</b>	96	82	73
200		22	25	73	47	7.8	4	80	75	92	7.8	83	00	78
250		62	92	82	81	98	84	83	80	92	82	84	83	80
315		91	92	80	80	84	85	85	82	7.8	15	74	9,	16
004		84	81	80	83	82	85	88	87	82	8.2	75	80	79
200		82	62	81	8 1	82	81	78	81	11	11	16	80	79
630		84	87	87	85	83	9.4	85	94	81	7.8	80	80	82
800		06	06	96	96	91	96	98	90	88	88	88	89	69
1000		81	82	84	94	84	84	85	82	11	11	11	7.8	78
1250		80	98	84	83	81	83	81	98	80	75	73	11	79
1600		92	81	80	7.8	7.8	11	81	81	92	14	73	73	77
2000		14	77	28	7.8	75	7.8	80	80	9,	7.0	20	72	73
2500		73	75	11	91	92	4	81	82	62	7.1	69	7.1	7.4
3150		81	85	94	82	80	80	81	83	80	7.1	7.1	72	76
4000		85	90	87	88	84	82	82	83	62	73	72	15	79
2000		73	92	92	14	74	77	7.8	80	75	65	63	65	99
6300		18	81	61	15	22	47	77	7.8	73	49	63	65	99
9000		84	88	86	81	7.8	11	62	62	73	29	99	69	71
10000		7.1	73	15	2.0	69	1.1	73	74	99	58	96	65	59
OVERALL		86	98	86	66	96	86	66	96	93	95	96	95	93

. 7	IVS OCIANE SAND											OMEGA	A 3.	2
NOISE SOURC	SOURCE/SUBJECT:	Ξ.	OPERATIONS	ONE			~ -					RUN	80	250
A/H32C-4	ATP CONDITIONER		HFAT	HEAT CYCIF			•					1 26 1	AUG 74	
NEAR FIFE	NEAR FIFTO NOTSF I FVFI S													
(INSIDE HANGER)	TANGER						-					) PAGE	F.8	
6850	OTSTANCE (M) ->	4	4	4	4	4	~	•	•	•	•	•	•	^
(HZ)	DE	260	280	300	320	340	. 0	20	0,	99	80	100	120	140
25				644		616	704	666	674	674	666	694	704	70.
31.5		664	999	674	684	684	73	74	73	72	0	72	73	7.1
0+		654	>99	249	634	624	69	68	202	7.1	14	14	14	73
20		65	7.0	> 49	65	99	7.0	69	20	7.1	73	73	73	72
63		69	7.8	20	73	75	75	14	74	75	14	75	16	16
80	•	69	72	72	73	16	92	92	72	72	22	78	78	11
100		14	75	14	14	73	92	11	77	92	92	62	62	77
125		89	95	90	9.0	93	95	36	88	94	81	68	89	88
160		81	84	82	82	95	85	9.4	82	80	80	9.2	98	86
200		7.8	14	75	92	75	7.8	79	62	83	*8	83	9.4	82
250		81	62	62	7.8	92	91	91	78	68	88	98	91	90
315		11	7.8	14	25	75	84	86	84	98	88	9.0	91	85
004		11	11	81	62	79	87	87	86	90	88	68	93	86
200		4	81	78	82	81	93	89	90	89	88	98	85	85
630		81	80	83	9.4	82	88	93	95	85	88	68	9.0	88
800		90	91	88	91	98	98	89	96	85	88	95	100	46
1000		19	81	62	80	82	85	87	9.6	85	98	88	90	89
1250		11	7.8	80	62	80	87	9.0	89	88	88	68	89	92
1600		15	14	92	25	91	83	98	85	9.4	83	85	87	87
2000		73	72	73	14	72	80	82	82	90	80	84	98	87
2500		72	71	7.1	7.1	72	78	80	82	81	82	85	98	92
3150		11	73	92	75	83	89	89	06	84	83	85	88	91
0004		4	11	80	83	98	93	93	95	68	88	87	87	88
2000		29	99	99	69	7.1	80	80	82	78	7.8	94	85	87
6300		99	99	69	72	73	98	88	98	81	11	81	86	86
8000		7.1	72	14	7.8	80	95	16	91	87	80	91	85	86
10000		61	09	62	65	99	11	80	80	73	72	92	80	82
OVERALL		70	90	ò	u	,	,	400	103	80	4	100	200	

,	1/3 OCTAVE BAND											
1						-		-				) TEST 71-020-330
NOISE SOUR	SOURCE/SUBJECT :	-	OPERATION:	* NO								2 RUN 09
A/H32C-4	A/M32C-4 AIR CONDITIONER		HEAT	HEAT CYCLE								1 26 AUG 74
(INSIDE HANGER)												) PAGE F9
	DISTANCE (M) ->	~	~	~	~	~	8	~	~	~	2	OPERATOR LOCATION
FREQ (HZ)	W	160	180	200	220	240	260	280	300	320	340	TEST CONDITION
25		714	714	714	546	654	6.36	544	, A	75		7.8
31.5		72	7.1	12	674	>69	202	72	25	25		2.0
104		71	72	17	20	11	72	69	69	7.1		73
20		14	73	11	20	20	89	88	89	72		7.2
63		11	11	92	14	11	10	7.1	11	15		77
00		11	79	18	92	75	73	73	1.4	22		7.8
100		11	78	80	80	79	29	11	11	92		79
125		80	95	46	91	96	96	91	95	93		16
160		98	68	69	9 .	96	60	85	88	86		900
200		9 1	2 3	65	# t	9 0	9 0	90	0.0	5.3		0 00
215			* *	0 6	0 0	2 2	0 0	t 1	0 0	100		10
004		M 60	8 0	85	85	9 6		3 0	9 6	200		91
200		84	13	81	85	82	7 80	85	98	88		92
630		98	83	81	88	83	87	68	83	9.6		92
800		95	89	93	96	96	91	87	88	95		91
1000		82	8.0	81	9.4	85	83	82	81	83		88
1250		81	80	11	82	9 4	48	87	79	84		91
1600		62	14	14	82	81	80	11	92	79		86
2000		11	73	73	43	62	62	92	14	78		82
2500		9	73	12	79	80	7.8	15	73	15		61
3150		4	75	72	80	79	80	7.8	7.8	82		93
0004		18	7.8	74	11	81	83	82	82	96		98
2000		14	99	99	99	7.1	20	20	20	72		82
6300		73	99	49	99	70	72	14	14	14		68
8000		72	99	29	69	22	7.8	80	81	80		95
10000		29	9	28	09	49	65	65	99	69		83

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: H	MEASURED SOUND PRESSURE LEVEL (08) OCTAVE BAND	SSURE	- LEVEL	(08)								) IDEN	IDENTIFICATION: OMEGA 3.2	TIONS
NOISE SOURCE/SUBJEC	CE/SUBJECT :	ű.	OPERATIONS	ONE			~ -					S S	10	000-00
A/M32C-4 NEAR FIE (INSIDE	A/M32C-4 AIR CONDITIONER NEAR FIELD NOISE LEVELS (INSIDE HANGER)		VENT	VENT CYCLE							1975	) 26 ) PAG	26 AUG 74 PAGE J1	
i														
(HZ)	ANGLE (DEG)>	40	50	<b>,</b> 3	60	80	100	120	140	160	180	200	220	240
31.5		89	99	67	29	69	69	69	2.0	68	67	68	67	99
63		11	25	73	72	73	73	74	1.4	75	75	75	73	72
125		93	69	82	85	82	85	7.8	80	83	88	90	89	82
250		29	28	80	82	9.4	84	84	82	80	29	84	82	81
200		98	98	98	85	94	98	89	98	81	80	7.8	4	82
1000		87	68	76	93	89	16	76	95	87	82	87	88	68
2000		79	81	82	80	29	81	83	84	62	73	73	74	16
0004		87	96	90	87	81	85	9.4	85	8.0	15	74	75	18
8000		84	87	98	81	80	62	80	80	52	29	99	69	72
OVERALL		96	96	26	95	93	96	96	96	91	9.0	93	95	91

2 00	AND	000	PRESSURE LEVEL									OME	GA 3.	OMEGA 3.2
NOISE SOURCE/SUBJE	SOURCE/SUBJECT:	-	OPERATION	LONI			-					S RUN	02	RUN 02
A/M32C-4	A/H32C-4 AIR CONDITIONER		VENT	VENT CYCLE								1 26	26 AUG 74	
(INSIDE HANGER)	ANGER)											) PAG	E 32	
FREG	DISTANCE (M) ->	+	4	4	4	*	2	2	2	~	2	2	2	2
(HZ)	ANGLE (DEG)>	260	280	300	320	340	0	20	0,	09	80	100	120	140
31.5		99	99	99	99	69	73	72	73	73	72	74	14	74
63		2.0	2.0	72	14	25	92	75	75	75	92	7.8	79	79
125		83	88	98	78	9.0	91	89	85	81	81	96	88	98
250		81	81	11	62	11	84	85	98	69	83	91	91	88
200		80	82	82	83	82	91	91	93	89	90	90	95	8
1000		87	98	68	88	82	68	68	16	89	68	95	93	66
2000		75	14	75	75	75	82	84	85	84	9.4	87	90	92
0000		7.8	11	81	81	84	96	93	96	90	88	87	90	92
8000		72	72	1,4	11	62	95	46	06	85	94	94	88	83
OVERALI		0	92	00	00		400	00	100	90	90	80	00	• 0 •

7 00	OCTAVE BAND	SSUKE	LEVEL	(08)								) IDENTIFICATIONS ) OMEGA 3.2
NOISE SOURCE/SUBJECT	E/SUBJECT#	2.	OPERATIONS	I NO			^					RUN 03
A/M32C-4 AIR CO NEAR FIELD NOIS (INSIDE MANGER)	A/M32C-4 AIR CONDITIONER NEAR FIELD NOISE LEVELS (INSIDE HANGER)		VENT	VENT CYCLE					301	W 5 W 8	15.5	26 AUG 74 ) PAGE J3
	DISTANCE (M) ->	2	2	8	2	2	~	~	2	2	8	OPERATOR LOCATION
FREQ (HZ)	ANGLE (DEG)	160	180	200	220	240	260	280	300	320	340	TEST CONDITION
31.5		73	7.1	73	73	73	72	2.0	7.4	77		11
63		19	79	7.8	7 8	92	14	73	1.2	11		7.8
125		68	93	93	91	95	96	88	92	8		06
250		83	83	88	89	90	90	87	96	85		98
200		85	85	85	88	87	85	87	88	91		16
1000		9 4	84	90	46	96	95	90	90	8		92
2000		81	92	22	9.0	83	81	19	7.8	82		87
0000		81	77	15	7.8	83	83	83	85	90		16
8000		42	11	68	73	29	7.8	22	11	83		56
OVERALL		26	95	96	4	100	80	90	90	0.7		102

7													NO O	OMEGA 3.2	2 2
NOISE SOURCE/SUBJECT:	E/SUBJECT	=		OPERATION	ı N								2 2		66 - 00
A/M32C-4 AIR CONI NEAR FIELD NOISE (INSIDE HANGER)	AIR CONDI O NOISE (	UDITIONER E LEVELS		COOLI	COOLING CYCLE	J.E							) 26	26 AUG 74 PAGE J4	
FREG	DISTANCE	÷ €	t	3	4	,	•	3		3		,	*	•	•
CHZ	ANGLE (DEG) 3	1EG1	0	20	0,	9	90	100	120	140	160	180	200	220	240
31.5			75	14	73	**	7.4	73	74	72	75	1,4	73	72	7.0
63			83	81	62	7.8	11	77	11	62	82	78	82	91	11
125			96	96	91	95	87	68	88	84	98	68	93	06	85
250			83	83	83	78	88	6 9	88	85	9.4	9 4	98	85	84
200			90	90	36	69	87	91	96	90	85	83	81	85	84
1000			92	92	98	96	93	102	101	95	88	87	98	91	86
2000			80	83	83	83	81	82	85	96	83	11	92	18	79
0004			98	90	90	88	82	83	85	98	83	92	11	7.8	78
8000			83	87	87	83	82	79	90	81	78	69	68	72	74
				1			,		1			1	,		1

2	OCTAVE BAND	9		ביינים בי	90								ONG	DOMEGA 3.2	110N1
NOISE SOURCE/SUBJECT	CE/SUBJEC	07.	~.	OPERATIONS	. NO			^ ′						1 05	156-02
A/M32C-4 AIR CON NEAR FIELD NOISE (INSIDE HANGER)	AIR COND LD NOISE HANGER)	NOITIONER E LEVELS		C000LI	COOLING CYCLE	J.E	dva.						26 P P P	26 AUG 74	
FREG	DISTANC	CE (M) ->	+	*	t	<b>t</b>	t	2	2	2	2	2	2	2	2
(HZ)	ANGLE	ANGLE (DEG)>	260	280	300	320	340	0	20	0+	60	80	100	120	140
31.5			7.0	7.1	72	73	73	7.8	79	82	7.8	11	77	7.8	77
63			16	16	77	79	81	83	83	82	81	81	81	81	83
125			87	98	89	89	95	95	87	85	96	90	90	91	95
250			94	9.4	83	82	83	9.0	89	87	91	91	91	93	91
200			87	85	87	98	87	91	96	46	95	95	76	95	95
1000			86	68	91	91	68	95	95	96	93	95	66	26	103
2000			4	28	78	7.8	42	85	98	88	98	98	88	91	93
0004			81	83	82	82	87	96	96	66	68	88	89	91	93
8000			73	75	16	82	83	93	93	46	98	83	94	88	88
OWEGALE			20	0.7	u	9	0.0	,	107	103	•	0			

TABLE: ME	MEASURED SOUND PRESSURE LEVEL (08) OCTAVE BAND	SSUR	E LEVEL	(08)								) IDENTIFICATIONS ) ONEGA 3.2
NOISE SOURCE/SUBJE	E/SUBJECT:	٠,	OPERATION	. NO			~ ′					) TEST 71-020-330 ) RUN 06
A/H32C-4 AIR CONINEAR FIELD NOISE	AIR CONDITIONER D NOISE LEVELS AANGER)		COOLI	COOLING CYCLE	31E							26 AUG 74
	DISTANCE (M) ->	2	2	2	8	2	2	2	8	~	8	OPERATOR LOCATION
FREQ (HZ)	ANGLE (DEG)>	160	180	200	220	240	260	280	300	320	340	TEST CONDITION
31.5		62	62	62	75	92	75	25	11	80		82
63		98	87	98	83	83	82	81	81	82		85
125		95	76	46	95	96	96	06	95	91		91
250		88	87	90	91	95	91	87	87	87		92
200		89	98	98	8	87	87	89	88	95		96
1000		90	88	95	95	93	96	26	91	93		95
2000		82	8.2	8.2	82	85	83	81	4	83		99
0004		82	92	75	80	85	84	96	87	85		100
8000		15	73	20	1.4	11	7.8	11	62	85		96
OVERALL		16	46	66	66	66	100	16	46	86		104

7												OME	ONEGA 3.2	ONEGA 3.2
NOISE SOURCE/SUBJECT	SE/SUBJECT:	-	OPERATION	. NO								R GEN	0.1.0	166-02
A/M32C-4 AIR CO NEAR FIELD NOIS (INSIDE HANGER)	A/M32C-4 AIR CONDITIONER NEAR FIELD NOISE LEVELS (INSIDE HANGER)		HEAT	HEAT CYCLE								) 26 ) PAG	26 AUG 74 PAGE J7	
FREQ	DISTANCE (M) ->	t	•	t	t	t	t	t	t	t	t	£	*	•
(HZ)	ANGLE (DEG)>	0	20	0+	09	9.0	100	120	140	160	180	200	220	240
31.5		73	2.0	11	7.1	72	7.1	72	11	72	7.1	73	11	69
63		62	7.8	75	14	14	92	92	92	28	29	29	77	14
125		96	91	85	9.0	84	87	82	84	98	26	76	91	80
250		81	80	83	84	88	88	88	9.4	82	48	87	85	83
200		88	89	88	88	87	88	91	68	85	82	82	94	85
1000		91	95	96	26	95	26	86	95	89	88	88	06	90
2000		62	83	83	82	81	83	85	98	82	92	92	11	80
0004		87	91	83	89	98	85	85	87	83	75	75	11	81
8000		85	68	87	82	80	80	82	82	11	69	69	11	72
OVEDAL		0			0						-			

2 00	OCTAVE BA	SOUND PRESSURE LEVEL	ESSUR	E LEVE	(08)								) IDEN	IDENTIFICATION:	TIONS
NOISE SOURCE/SUBJE	OURCE/SUBJE	CT:	-	OPERATION:	EON:			^					) TES	TEST 71-020-330	20-330
A/M32C-4 AIR CON NEAR FIELD NOISE (INSIDE HANGER)	AIR CON LD NOISE HANGER)	DITIONER E LEVELS		HEAT	HEAT CYCLE								26 1 PAG	26 AUG 74 PAGE J8	
FREQ	DISTAN	1CE (M) ->		4	+	*	3	2	2	2	2	2	2	2	2
(ZH)	ANGLE	(DEG)>	260	280	300	320	340	0	20	04	9	80	100	120	140
31.5			69	69	2.0	69	7.0	92	75	75	75	92	77	11	92
63			73	62	75	92	4	4	7.8	11	11	62	81	81	80
125			89	92	90	91	46	93	93	68	85	9.4	9.0	91	90
250			84	82	81	81	80	95	36	87	91	91	95	16	95
200			84	48	86	87	98	95	95	96	93	93	93	95	91
1000			91	91	68	91	88	91	76	46	91	95	96	100	66
2000			7.8	11	7.8	7.8	7.8	98	88	88	87	98	89	91	76
000%			81	7.8	81	83	87	96	16	26	90	90	90	91	93
8000			72	73	22	62	81	93	68	35	88	82	85	89	83
OVERALL			76	96	76	9.5	96	101	102	103	80	80	100	103	102

<b>5</b> 00	OCTAVE BAND			3								) OMEGA 3.2
NOISE SOURCE/SUBJE	E/SUBJECT :	-	OPERATION:	. NO			~ -					RUN 09
A/M32C-4 AIR CON NEAR FIELD NOISE (INSIDE HANGER)	AIR CONDITIONER. D NOISE LEVELS ANGER)		HEAT	HEAT CYCLE								) 26 AUG 74 ) PAGE J9
	DISTANCE (M) ->	2	2	2	8	2	2	2	8	8	2	OPERATOR LOCATION
FREQ (HZ)	ANGLE (DEG)>	160	180	200	220	240	260	280	300	320	340	TEST CONDITION
31.5		16	16	75	72	74	7.4	14	11	62		82
63		81	82	80	4	11	75	92	92	62		81
125		90	96	96	92	26	46	95	95	46		95
250		68	87	90	9.0	95	91	88	87	48		92
200		89	88	87	91	87	89	91	89	95		96
1000		95	90	46	96	96	95	91	89	93		95
2000		83	7.8	11	85	95	84	81	62	83		88
0004		82	80	92	82	83	85	83	84	88		66
8000		92	20	69	7.1	92	62	81	81	81		96
OVEDAL		20	0	0	0	,				0		

3											) OMEGA	4	2
NOISE SOURCE/SUBJECT:	0	OPERATION:	. NO			-					RUN	01	20-330
A/M32C-4 AIR CONDITIONER NEAR FIELD NOISE LEVELS	S.E.	VENT	CACLE								26	AUG 74	
(INSIDE HANGER)	~					-					) PAGE	H	
DISTANCE (M) -> ANGLE (DEG)>	<b>30</b>	50	14	4 9	1.0	100	120	140	160	180	200	220	240
HAZARD/PROTECTION C-WEIGHTED OVERALL SC A-WEIGHTED OVERALL SC MAXIMUM PERMISSIBLE I NO PROTECTION	SOUND LEVEL SOUND LEVEL TIME (T IN		(OASLC IN (OASLA IN MINUTES)	080	A A T	SURE	PER DAY	CAFR	161-35,	, JULY	133		
	96	96	96	96	95	96	96	95	91	90	63	92	91
OASLA	95	95	96	16	91	95	36	96	68	9.4	87	88	89
SECTION OF SECTION	120	2	9	92	143	11	17	82	202	0 8 4	582	0 42	202
בא אאם	73	7.1	20	69	29	7.0	7.0	89	99	68	2.0	69	99
		960	096	960	096	096	960	960	096	096	096	960	960
AMERICAN OPTICAL 1700 F	EAR MUFF	(A)	44	24	63	7	79	S	0 9	23	4	44	9
1	960	960	960	96	960	96.0	960	96.0	96.0	960	960	960	960
V-51R EAR PLUGS							;		;	; ;			
CASEA	100	0 4	1 0	0 40	1000	1 0	1 0	6 0	* 0	100	* 00	0 0	0 0
PTICAL 1700	EAR MUFF	v		EAR	PLUGS	306	906	206	200	100	200	9	300
OASLA*	53	24	25	26	53	21	25	55	20	4.7	51	51	25
UP COMMU	NICATION UNI	_	196	96	196	960	960	960	960	960	996	96	96
OASLA*	69	29	29	99	63	29	29	99	62	58	61	61	62
-	960	960	096	096	960	096	960	960	960	960	960	196	960
COMMUNICATION PREFERRED SPEECH INTE PSIL	INTERFERENCE 84	E LEVEL 85	L (PSIL 87	8 H	08)	87	60	87	<b>60</b>	8.2	62	0	82
ANNOYANCE PERCEIVED NOISE LEVEL	TONE.	CORREC	TED (P	NLT I	CORRECTED (PNLT IN PNDB)								
PNLT C	110 3	113	113	117	107	110	110	108	105	100	103	104	105

~											OMEGA	•	2
NOISE SOURCE/SUBJECT:	0	OPERATIONS	. NO			-					RUN	20	20-330
A/H32C-4 AIR CONDITIONER		VENT	CYCLE								1 26	AUG 74	
NEAR FIELD NOISE LEVELS (INSIDE HANGER)						~~					PAGE	-	
DISTANCE (M)-> ANGLE (DEG)>	560	280	300	320	340	0.0	20 50	2 04	2 60	80	2 100	2 120	140
HAZARD/PROTECTION C-WEIGHTED OVERALL SOUND A-WEIGHTED OVERALL SOUND MAXIMUM PERMISSIBLE TIME	LEV		COASLC IN COASLA IN MINUTES)	N DBC)	A A T A	SURE	PER DAY	(AFR	161-35,	JULY	52		
NO PROTECTION	0	6	6	0	6	9	9	9	96	96	8	0	:
OASLA	80 60	87	90	90	8 8	66	86	66	92	96	92	96	101
	240	285	170	170	240	36	45	36	11	85	20	42	52
MINIMUM OPL EAR MUFFS	,		;	,	•	i	;	;		;	;	;	;
UASLA	600	000	100	9	200	*	*	2		7	2	*	*
AMERICAN OPTICAL 1700 EA	4	960	096	96	196	969	960	960	996	960	960	960	960
	09	63	62	61	65	69	69	68	99	99	89	69	68
-	096	960	960	960	096	096	096	096		096	096	096	960
V-51R EAR PLUGS	6.1.	77	99	9	63		;	*					36
C#3C#	96.0	000	000	960	0,00	1 0	1 0	040	600	96.0	040	2 6	96.0
AMERICAN OPTICAL 1700 EA	- 12	S PLUS	V-51R	EAR	PLUGS	200	200	200		200	200	2	200
	20	20	25	55	20	25	25	66	54	24	58	58	62
	096	096	960	096	096	096	096	096		096	096	960	960
H-133 GROUND COMMUNICATION UNIT	ON UNIT		62	62	62	7.1	69	17	99	99	69	7.0	74
_	096	096	096	096	096	960	096	096		096	096	960	096
COMMUNICATION PREFERRED SPEECH INTER PSIL	INTERFERENCE 81	E LEVEL 80	L (PSIL 82	IN 82	08)	80	88	4	87	87	91	95	46
LEVEL,	Ä	CORRECTED (PNLT IN	TEO (F	NLT I	N PNDB)								
PNLT C	103	103	106	106	107	118	116	117	113	111	112	113	117

~											
NOISE SOURCE/SUBJECT:	-	OPERATION	. NO			^-					) RUN 03
A/H32C-4 AIR CONDITIONER		VENT	CYCLE								1 26 AUG 74
NEAR FIELD NOISE LEVELS (INSIDE HANGER)						^^					) PAGE H3
DISTANCE (M) -> ANGLE (DEG)>	160	180	200	220	240	260	280	300	320	340 3	OPERATOR LOCATION TEST CONDITION 1/A
HAZARD/PROTECTION C-WEIGHTED OVERALL SOUND A-WEIGHTED OVERALL SOUND		LEVEL (OA	COASLC IN	080	AT EAR						
IBLE			MINUTES)	FOR ONE		EXPOSURE	PER DAY	LAFR	161-35,	JULY 73)	73)
	93	95	96	16	66	98	76	96	96		101
DASLA	89	88	91	16	96	46	95	93	95		101
	202	240	143	82	9	82	120	101	7.1		52
MINIMUM OPL EAR MUFFS	10	7.2	74.	7.2	7.6	77	20	7.4	13		76
UNSLA	0 90	2 0	0 0	0 90	060	96.0	9 9	040	96.0		8
AMERICAN OPTICAL 1700 EAR	R MUFF		200	200	200	9	200	200			Ř
		99	69	68	7.0	69	69	89	29		71
-	960	960	960	960	096	960	960	096	096		096
V-51R EAR PLUGS											
OASLA*	49	49	68	7.1	73	7.0	68	69	20		12
	960		960			096	096	096	096		096
AMERICAN OF ICAL 1700 EA	EAK MUFFS	2 2 2	V-51K	FAR	PLU6S		7	u	U		6
CASEA.	0 0	100	1	0 90	600	0 0	000	000	040		06.0
H-133 GROUND COMMUNICATION UNIT	NONO	11	200	200	200	200	200	200	200		96
OASLA*	62	63	65	29	69	67	79	65	99		72
_	096	096	096	096	096	196	096	096	096		096
COMMUNICATION PREFERRED SPEECH INTER	INTERFERENCE			Z	08)						
	83	82	83	87	89	98	85	85	87		91
ANNOYANCE PERCEIVED NOISE LEVEL, TONE	TONE	CORREC	CORRECTED (PNLT IN PNDB)	ALT IN	PND8)						
	104	103	107	109	112	109	108	110	114		120
•		2	1	1	,	4	~	4	1		,

•											) OMEGA	•	.2
NOISE SOURCE/SUBJECT:	-	OPERATIONS	ž			-					) TEST	_	71-020-330
ACHINE ATP CONDITIONS	•	SAT 1003	G CYCLF	u		•					36	AUG. 74	
NEAR FIELD NOISE LEVELS				•		•					2		
(INSIDE HANGER)	-					-					) PAGE	# 3	
TOWARD TO					•					4			•
ANGLE (DEG)>		20	, ;	09	80	100	120	140	160	180	200	220	240
HAZARD/PROTECTION	-			1000	AT EAG								
A-WEIGHTED OVERALL SO	SOUND	LEVEL COASLA	LAIN		AT EAR								
MISSIBL	TINE (1		_	FOR ONE		SURE	PER DAY	CAFR	161-35,	, JULY	73)		
OASLC	96	96	100	66	96	103	102	86	93	93	96	95	91
DASLA	95	96	66	46	76	102	101	16	91	68	88	91	89
	7.1	09	36	20	82	21	52	20	143	202	540	143	202
MINIMUM OPL EAR MUFFS	75		74	7.4	7.	76	75	7	9	20	2.2	**	67
1	960	040	000	040	96.	0 40	0.40	90	0 90	0 40	0 90	96.0	96
AMERICAN OPTICAL 1700 E	EAR MUF	FFS	200	200	200	200	200	200	200	900	200	2	
			69	89	99	2.0	69	69	49	65	68	99	62
-	096	960	096	096	096	960	096	096	960	096	096	960	96
V-51R EAR PLUGS		;	1	1.2		,	;	;	99				1
CHOCK	0 30	1 0	000	2 40	0 0		200	2 4	0 0	000	100	000	200
AMERICAN OPTICAL 1700 E	EAR MUFFS	FFS PLUS	V-51R	EAR	PLUGS	906	200	200	300	100	200	200	300
			61	59	26	65	63	65	53	52	55	24	51
	960	960	096	096	960	960	096	096	096	096	096	096	960
H-133 GROUND COMMUNICATION UNIT	ION C												
OASLA*	29	69	7.1	69	99	14	73	69	49	62	63	49	62
-	096	096	096	096	096	960	096	196	096	096	096	096	960
COMMUNICATION	200000000000000000000000000000000000000		17.00	:	6								
37 55	87	88		8 3	87	92	95	06	85	82	81	18	83
ANNOYANCE DEDCETVED NOTSE LEVEL	TONE	SUND NT TINGS COTTO	60	-	9070								
DRRECTION	08)												
	111	113	113	113	109	115	115	111	107	103	104	106	103
	~	~	2	•	•			,	•	•	•	,	•

\* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.

3											) OMEGA	A -	20-3
NOISE SOURCE/SUBJECT:		OPERATION:	* NO								RUN .	02	
A/M32C-4 AIR CONDITION	ER	COOLING	NG CYCLE	ш		•					1 26	26 AUG 74	
ELD N HANG	s										PAGE	E .	
DISTANCE (H) -> ANGLE (DEG)>	* 5 ¢	7 F S 8 0	300	320	340	00	20 50	6 °	2 60	80 80	2 100	2 120	140
HAZARD/PROTECTION G-WEIGHTED OVERALL S A-METCHTED OVERALL S	SOUND LE		COASLC IN	4 08C) AT	AT EAR								
SIBLE		(T IN MIN	-	FOR ON	E EXPO	SURE	PER DAY	CAFR	161-35,	JULY	73)		
	93	93	95	95	26	100	102	103	86	86	102	101	105
OASLA	90	91	92	92	93	100	102	103	16	96	100	100	104
	170	143	120	120	101	30	21	18	20	09	30	30	15
MINIMUM OPL EAR MUFFS	0	3		,	3.6		:	;	:	i		*	,
UASLA	600	600	2 5	2 3	250	9,0	920		523	*	0	2	200
AMFRICAN OPTICAL 1700	FAR MIFE	,	200	961	196	960	196	960	960	196	960	196	96
	19		65	65	7.0	7.1	7.1	7.1	99	69	2.0	7.1	72
_	960	960	096	960	960	096	960	960	096	096	096	960	960
V-51R EAR PLUGS		;	,	:	;	;		1	;	i	1	:	
UASLAT	900	200	000	000	200	5 5	9,0	2	225	15	200	25	000
AMFRICAN OPTICAL 1700	FAR MUFFS	FE PLUS			Pi 1165	200	300	200	200	200	206	206	206
			55			66	61	62	28	25	62	61	99
1	960	σ.	960	096	960	096	096	096	096	096	096	960	960
DASLA*	HONICALIUN UNIT		79	65	99	7.2	7.3	75	9	8.8	72	12	11
-	960	960	960	960	960	960	960	960	960	096	960	960	960
COMMUNICATION PREFERRED SPEECH INT	CH INTERFERENCE	NCE LEVEL		Z	(80								
PSIL	9.4	9 4	85	85	85	68	93	76	06	06	46	16	96
ANNOVANCE  PERCEIVED NOISE LEVEL,	L, TONE		CORRECTED (PNLT IN PNOB	NLT IN	PN08)								
2	105	107	107	107	111	118	121	120	112	111	115	114	119

NOISE SOURCE/SUBJECT:  A/M32C-4 AIR CONDITIONER ( COOLING NEAR FIELD NOISE LEVELS ( INSIDE HANGER)  OISTANCE (M)-> 2 2 2 2 2 2 AMGLE (DEG)> 160 180 20	פל כל							
TIONER ( EVELS ( (M) -> 2 EG)> 160	ING CYCLI			•			•	RUN 06
NCE (M) -> 2 (DEG)> 160								26 AUG 74
		2 2 2 2 2 2 4 0	2 2 0 260	280	300	320	2 OPER 340 TES	1 737
	2	74 (280)	64					
SOUND LEVEL E TIME (T IN	(OASLA IN (MINUTES) FO	MA	EXPOSURE	PER DAY	CAFR	161-35,	161-35, JULY 73)	
26	. 98	66	-		16	86		103
OASLA 93 90	95		71 60	9 6	9 %	96		103
EAR MUFFS								
	75		76 77	22	23	1.		7.8
096		96 096	196 196		960	196		096
DASIA* 68 69	7.0	69	71 72	67	84	84		7.8
6 096			0.	6	960	960		096
					;			
UASLA*	27.5		71 73		2 5	2,0		9 5
FFS	45U	EAR PLUC	960 960 068	206	206	206		196
55	58			95	26	58		62
T 960 960 HELD SOUND COMMINICATION INTI	096		096 096		960	096		096
0ASLA* 66 65				19	99	19		75
6	096	96 096	096 096	6	960	096		096
NCE		IN 08)						
PSIL 87 84	98	89	88 88	1 87	98	83		93
ANNOYANCE PERCEIVED NOISE LEVEL, TONE CORRECTIONS CORRECTION (C.T.M. DO)	CORRECTED (PNLT IN PNDB)	LT IN P	(80)					
	110	110 11	110 112	110	112	111		122

~											OMEGA	-	3.2
NOISE SOURCE/SUBJECT:	Ů,	OPERATIONS	. NO								RUN	-	5-02
A/M32C-4 AIR CONDITIONER NEAR FIELD NOISE LEVELS	SER	HEAT	CYCLE								92	2	
(INSIDE HANGER)	-					^					) PAGE	E #7	
DISTANCE (M) -> ANGLE (DEG)>	<b>7</b> 0	<b>50</b>	13	4.0	30	100	120	101	160	160	200	\$ 22.0	240
TO/PROTECTION C-WEIGHTED OVERALL A-WEIGHTED OVERALL AXIMUM PERMISSIBLE	SOUND LEVEL SOUND LEVEL TIME (T IN		COASLC IN COASLA IN MINUTES) F	V DBC) A V DBA) A FOR ONE		SURE	PER DAY	CAFR	161-35,	JULY	13		
NO PROTECTION DASLC	86	16	98	66	95	98	66	96		76	96	95	93
DASLA	76	96	16	98	36	16	96	95	91	68	68	91	91
	82	09	20	45	85	20	45	11		202	202	143	143
MINIMUM QPL EAR MUFFS OASLA*	75	73	7.7	7.3	20	72	73	7.0		72	73	7.1	67
	.096	960	960	096	960	96	960	960	096	096	096	960	96
AMERICAN OPTICAL 1700	EAR MUFF	S	9	13	u	23	13	9		13	4	99	3
1	096	960	960	960	960	960	960	960		096	960	960	960
V-51R EAR PLUGS	6	2.0	73	7.6	7.	74	75	7.0		9	4	67	5.7
_	960	CD.	960	960	960	96 0	960	960		960	960	960	960
AMERICAN OPTICAL 1700	EAR MUFFS	S PLUS	V-51		PLUGS								
OASLA*	980	960	960	95.0	922	96.9	961	950	53	53	53	750	53
H-133 GROUND COMMUNICA	UNICATION UNIT		69	69	99	69	202	67	49	63	3	3	2
-	096	960	096	096	096	096	096	960	960	096	096	960	960
COMMUNICATION PREFERRED SPEECH INT PSIL	INTERFERENCE 86	E LEVEL 88	L (PSIL 89	X 6	08)	6	91	6	8 5	82	82	*	80
ANNOYANCE PERCEIVED NOISE LEVEL,	TONE	CORREC	TE0 (1	CORRECTED (PNLT IN PNDB	PND8								
PNLT PNLT	111	114	113	113	109	112	113	110	107	105	104	106	106

S MOTOR SOURCE VOIR JECT .		OPFRATTONS	1			-					ONEGA TEST	13 H	71-020-330
The source sooned						•							
A/H32C-4 AIR CONDITI	DITIONER	HEAT	CYCLE								92 (	AUG 74	
(INSIDE HANGER)	~					-					) PAGE	E E	
DISTANCE (M) -> ANGLE (DEG)>	E (M) -> 4	280	300	320	340	00	20	2 94	60	80	100	120	2 140
HAZARD/PROTECTION C-WEIGHTED OVERALL A-WEIGHTED OVERALL MAXIMIN PERMISSIR	SOUND	LEVEL COA	COASLC IN	1 08C) A		3017	PF is DAY	AFR	161-35.	1	82		
NO PROTECTION		-											
OASLC	***	96	160	95	96	100	101	102	98	98	100	103	102
1	143	120	143	101	120	36	30	21	20	20	36	21	21
MINIMUM QPL EAR MUFFS													
OASLA*	7.0	72	71	72	73	77	22	92		73	75	11	76
		096	960	096	096	096	096	960	096	096	096	960	960
AMERICAN OPTICAL 1700	O EAK MUFF	5 67	99	99	89	7.1	22	7.1	64	89	2.0	12	7.0
1	960	960	960	960	960	960	960	960	096	096	960	80	960
V-51R EAR PLUGS				,								. 1	
OASLA	89	99		69	29	7.3	47	92		7.5	2	2	16
AMERICAN OPTICAL 1700	EAR	S PLUS	960 V-51R	EAR	PLUGS	96	196	960	960	960	960	96	96
		55		55	54	69	9	62	25	25	09	79	62
	096		960	096	960	096	096	960		096	096	960	960
H-133 GROUND COMMONI	UNICATION UNIT		79	65	99	7.1	72	73		89	7.1	1,4	75
-	096	096	960	960	096	096	096	096	960	096	096	960	960
COMMUNICATION PREFERRED SPEECH I	INTERFERENCE			Z	08)								
PSIL	9,6	19	\$	82	4 9	9.0	95	76	06	90	93	96	95
ANNOYANCE PERCEIVED NOISE LE	LEVEL, TONE	CORRECTED (PNLT IN PNDB)	TEO CP	NLT IN	PNDB)								
	106	107	106	108	110	111	118	119	114	113	114	117	117

TABLE: MEASURES OF HUMAN NOISE EXPOSURE  3	E EXPOS	URE								IFICATI A 3.2
NOISE SOURCE/SUBJECT:	OPERATION:	. NO			~					-) TEST 71-020-330 ) RUN 09
de la constitución de la contrata										1 26 AIN 74
NEAD FIFTO NOTOF I FUEL O	4 2 4	MEAN CTOLE								1 20 400 14
(INSIDE HANGER)					^					) PAGE H9
DISTANCE (M)-> 2 ANGLE (DEG)> 160	180	200	220	2 40	2 5 5 6 0	280	300	320	340	OPERATOR LOCATION TEST CONDITION 1/C
			200							
A-WEIGHTED OVERALL SOUND A-MEIGHTED OVERALL SOUND MAXIMUM PERMISSIBLE TIME	LEVEL COA	COASLA IN			SURE	PER DAY	CAFR	161-35,	JULY	( 73)
NO PROTECTION	86	66	66	101	66	46	86	66		103
OASLA	95	16	26	97	95	16	93	96		103
	120	85	20	20	7.1	85	101	9		1.6
MINIMUM OPL EAR MUFFS	75	76	12	11	11	7.3	75	75		62
1 960	096	960	096	960	096	960	096	096		096
PTICAL 1700 EAR	S									
OASLA* 67	20	17	69	72	72	89	2	20		12
V-51R EAR PLUGS	360	106	96	363	196	960	960	960		196
	69	7.1	73	73	7.1	20	69	72		92
6	g		096	000	960	096	096	960		096
PTICAL 1700 EAR	FS PLUS	V-51	R EAR F	2 nes		,	-	1		
OASLA* 56	25	250	650	090	250	99	25	80 50		2 6 6
H-133 GROUND COMMINICATION UNIT	300	300	300	200	200	200	200	200		0.06
OASLA* 67		29	69	7.0	89	99	99	89		7.4
6	096	096	096	096	096	096	960	960		096
COMMUNICATION			:	9						
37666	85	86	06	89	8 8	8	96	68		93
LEVEL		CORRECTED (PNLT IN PNDB)	WLT IN	PNDB)						
LT 10 TO TO THE TO	101	109	111	112	110	109	109	112		122
	2	7	-	1	c	•	•			